CLAIMS

What is claimed is:

1. A network transmitter generating data frames of data for transmission on a network medium, the transmitter including a frame generation circuit comprising:

a) a first physical layer circuit generating data frames including overhead bits and data bits and modulating such frames of data for transmission on a network medium using a first modulation scheme;

b) a second physical layer circuit generating data frames including overhead bits and data bits received from the media access layer circuit and modulating such frames of data for transmission on a network medium using a second modulation scheme; and

c) the first physical layer circuit and the second physical layer circuit being operatively coupled for generating a compatibility mode frame, by the second physical layer circuit, comprising the initial header overhead bits modulated using the first modulation scheme and the remainder of the frame modulated using the second modulation scheme.

2. The network transmitter of claim 1, wherein the first modulation scheme is a pulse position modulation scheme and the second physical layer circuit obtains pulse position data from the first physical layer circuit for the initial header overhead bits.

3. The network transmitter of claim 2, wherein the second modulation scheme is a quadrature amplitude modulation scheme and the second physical layer circuit generates pulses of a quadrature amplitude modulated carrier at times corresponding to the pulse position data to generate the initial header overhead bits.

4. The network transmitter of claim 3, where the pulse position modulation scheme encodes two bits of data in each pulse by generating each pulse at a position corresponding to one of four possible pulse positions following a predetermined time gap.

5. The network transmitter of claim 4, wherein the remainder of the frame utilizing the quadrature amplitude modulation comprises a sequence of gaps interspacing quadrature amplitude modulated data, the sequence of gaps being at the predetermined pulse position modulation time gaps.

6. The network transmitter of claim 5, further including a media access controller receiving a data file for transmission from an upper layer application and making data available to the second physical layer circuit on a data bus.

7. The network transmitter of claim 6, further including a scrambler for converting at least a portion of the remainder of the frame modulated using quadrature amplitude modulation scheme to a scrambled format prior to modulation, the scrambled format providing for adequate bit transitions to limit electromagnetic noise outside a predefined transmission band.

8. The network transmitter of claim 7, wherein the initial header overhead bits comprises 16 bits and the remainder of the frame comprises additional overhead bits including 48 preamble bits which are quadrature amplitude modulated in an unscrambled format.

9. The network transmitter of claim 8, wherein a predetermined bit sequence from the media access layer initialized the scrambler, the predetermined bit sequence occurring after the preamble and before a data portion of the frame.

10. A method of transmitting data frames in a frame switched network including a first device capable of transmitting and receiving data frames utilizing pulse position modulation a plurality of second devices capable of transmitting and receiving data frames utilizing quadrature amplitude modulation, the method comprising:

a) transmitting initial header overhead bits complying with the pulse position modulation scheme by transmitting pulses of a quadrature amplitude

modulated carrier, utilizing a quadrature amplitude modulation physical layer circuit, in time durations complying with valid pulse positions; and

b) transmitting the remainder of the frame utilizing the quadrature amplitude modulation scheme.

11. The method of claim 10, wherein the positions of the pulses is determined by a pulse position modulation physical layer circuit operatively coupled to the quadrature amplitude modulation physical layer circuit.

12. The method of claim 11, wherein the pulse position modulation scheme encodes two bits of data in each pulse by generating each pulse at a position corresponding to one of four possible pulse positions following a predetermined time gap.

13. The method of claim 12, wherein the remainder of the frame utilizing the quadrature amplitude modulation comprises a sequence of gaps interspacing quadrature amplitude modulated data, the sequence of gaps being at the predetermined pulse position modulation time gaps.

14. The method of claim 13, further including a step of receiving the frame from a media access controller which in turn receives a data file for transmission from an upper layer application.

15. The method of claim 14, further including a scrambling at least a portion of the remainder of the frame modulated using quadrature amplitude modulation scheme to a scrambled format prior to modulation, the scrambled format providing for adequate bit transitions to limit electromagnetic noise outside a predefined transmission band.

16. The method of claim 15, wherein the initial header overhead bits comprises 16 bits and the remainder of the frame comprises additional overhead bits including 48 preamble bits which are quadrature amplitude modulated in an unscrambled format.

17. The method of claim 16, wherein a predetermined bit sequence from the media access layer initialized the scrambler, the predetermined bit sequence occurring after the preamble and before a data portion of the frame.